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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,809	12/12/2003	Karlheinz Bing	BING ET AL.-6	2779

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EXAMINER	
AFZALI, SARANG	

ART UNIT	PAPER NUMBER
3729	

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/734,809	BING ET AL.	
	Examiner	Art Unit	
	Sarang Afzali	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Application filed 12/12/2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12122003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. The reference "PCT/DE02/02768" cited under The Prior Art, page 2, line 14 of the specification is neither listed in the IDS nor any copy is provided with this application.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 112

3. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 1-2, the phrase "A method for the production of a forged piston for an internal combustion engine" is reciting the forging process in a general term, however the claim language is very confusing and unclear as what the forging process does and how the "causing the combustion depression to be formed in the oxidation-resistant steel" on lines 10-11 is being done.

The phrase "unmachined part" in claim 1, lines 6 and 8 and the phrase "unmachined parts" in claim 1, lines 12 & 16 and in claim 3, lines 2-3, and claim 4, line 23 are confusing and not clear as whether the first cylindrical and second cylindrical parts have ever been machined prior to being assembled. Note that the blank cylindrical parts must have been somehow machined (turning, rolling, shaping, etc.) to the right size and shape prior to being assembled together. Applicant may need to clarify as what exactly "unmachined" means and may have to specify that the joining surfaces of the two cylindrical parts are in a "rough" form prior to being joined together or something to this effect instead of using a general phrase such as "unmachined'.

Claim 1, lines 16-17, the phrase "fixing the unmachined parts in place at the parting" is unclear as to what "in place" means and is there a specific place that this parting should occur.

Claim 4, lines 2-4, the phrase "the unmachined parts are inductively heated and subsequently forged to produce a piston blank in a heated state" is also confusing as when exactly this forging step is being done. Note that the claim recites 'inductively heated" and then also recites "subsequently forged" in "a heated state". It needs to be clarified if "a heated state" is the same as 'inductively heated" step or whether it is a separate and different heated state.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 1, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (as set forth on page 3 of the specification, PCT WO 02/06658) in view of Nakano et al. (U.S. 4,517,930).

As applied to claim 1, WO 02/06658 discloses a method for the production of a forged piston for an internal combustion engine, having a combustion depression provided on the piston head, comprising the steps of: forming a piston blank (12, Fig. 3) from a first cylindrical unmachined part (14, Fig. 3) having at least one flat face made of oxidation-resistant steel (stainless steel) and a second cylindrical unmachined part (16, Fig. 3) having at least one flat face made of hot-forgeable steel (steel SE 4140), said

parts having same diameters, causing the combustion depression to be formed from oxidation-resistant steel (Fig. 2), said step of forming comprising: bringing the unmachined parts together at their flat faces and aligning said faces with respect to their diameters (Fig. 3), so that the flat faces form a minimal projection and a minimal parting; and fixing the unmachined parts in place at the parting by means of a minimal number of weld points; and finishing the piston blank via machining to produce a piston ready for installation in the internal combustion engine (Fig. 2).

WO 02/06658 teaches the invention cited with the exception of minimal number of weld points. However, Nakano et al. teach a method for constructing a piston for internal combustion engine (particularly diesel engines, col. 1, lines 3-4) wherein the piston head (crown 1, Fig. 2) is made of parts (1a) and (1b) from different materials and welded together at the seam by preferably electron beam welding or by arc welding (Fig. 2, col. 2, lines 1-12). Note that one continuous seam weld is considered a minimal number of weld points.

It would have been obvious to one of ordinary skill in the art at the time of invention to have provided WO 02/06658 with a suitable welding technique as taught by Nakano et al. to provide a piston with an upper part acting as a heat insulator thus allowing only a small amount of heat of combustion to transmit to the ring carrier through the upper part of the crown (col. 2, lines 27-30).

6. Claims 2, 3 & 6, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT WO 02/06658 in view of Nakano et al. and further in view of Ricaud et al. (U.S. 6,705,915).

As applied to claims 2 & 6, PCT WO 02/06658/Nakano et al. teaches the claimed invention with the exception of not explicitly teaching the three weld points offset from one another by an angle of 120 degrees and the laser welding.

However, Ricaud et al. teaches an assembling method wherein two cylindrical parts (cup 13 and skirt 2, Figs. 2A-C) are welded (weld beads 23) at three weld points (19) on the circumference by an angle 120 degrees apart from each other (col. 3, lines 29-32) to ensure a good mechanical retention of the cup in the skirt and further teach that the welding is done by laser beam (col. 3, lines 18-19). It would have been obvious to one of ordinary skill in the art at the time of invention to have provided WO 02/06658/ Nakano et al. with a suitable number of weld points and weld technique as taught by Ricaud et al. to provide an effective and ensure a good mechanical retention of the cup and skirt (col. 3, lines 31-32).

As applied to claim 3, both Nakano et al. and Ricaud et al. teach that the step of fixing (welding of two parts together) require no preheating of the unmachined parts.

7. Claims 4 & 5, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT WO 02/06658 in view of Nakano et al. and further in view of Rudd (U.S. 3,872,275).

As applied to claims 4 & 5, PCT WO 02/06658/Nakano et al. teaches the claimed invention including the fixing of first and second parts to each other. However, PCT WO 02/06658/Nakano et al. do not explicitly teach the step wherein immediately after fixing (welding) of parts together, the unmachined parts are inductively heated and that the heating process takes place at a temperature of 1100°C to 1300°C.

Rudd teaches a method of forge welding with a continuous weld seam of two dissimilar metal parts in a heated state wherein the heating takes place inductively by suitably configuring the induction coil and adjusting its position with respect to the desired weld line and by properly controlling the heating time to provide a continuous forge weld between the two metal parts without undesirable heating (col. 2, lines 19-26) and further teaches that heating process takes place at a temperature of at least 2000°F (equivalent to 1093°C) to forge weld the surfaces of the materials welded to each other (col. 2, lines 45-54). It would have been obvious to one of ordinary skill in the art at the time of invention to have provided WO 02/06658/ Nakano et al. with induction heating step as taught by Rudd to obtain an effective rapid continuous weld seam and without causing undesirable heating hence preventing damage or harmful distortion of portions of the parts outside of the weld area (col. 2, lines 22-26).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.A.
03/13/2006

George Nguyen
Primary Examiner